

Field-mounted Two-wire Signal Conditioners 6-UNIT

THERMOCOUPLE TRANSMITTER

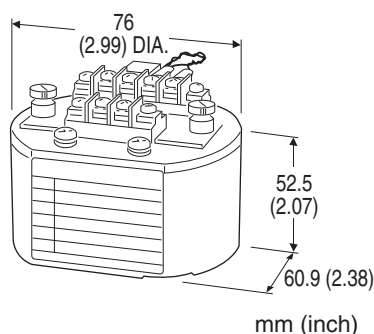
(field-configurable; non-linearization)

Functions & Features

- Accepting direct input from a thermocouple and providing a standard 4 – 20 mA DC signal
- Field selectable temperature range
- Burnout protection
- High-accuracy cold junction compensation
- Rugged enclosure

Typical Applications

- High-accuracy cold junction compensation benefits narrow span measurements
- 0.1 μ A burnout sensing enables long distance transmission with minimum offset drifts
- Electric furnace (isolation)



MODEL: 6TS1-[1][2]

ORDERING INFORMATION

- Code number: 6TS1-[1][2]

Specify a code from below for each of [1] and [2].

(e.g. 6TS1-2/BL)

- Temperature range (e.g. 0 – 800°C)
- Mounting adapter (e.g. surface mounting adapter plate, model: A-01)

Note: When a mounting adapter is required, specify mounting adapter. Not included without specifying.

[1] INPUT THERMOCOUPLE

- 1: (PR) (Usable Range 0 to 1760°C, 32 to 3200°F)
- 2: K (CA) (Usable range -270 to +1370°C, -454 to +2498°F)
- 3: E (CRC) (Usable range -270 to +1000°C, -454 to +1832°F)
- 4: J (IC) (Usable range -210 to +1200°C, -346 to +2192°F)
- 5: T (CC) (Usable range -270 to +400°C, -454 to +752°F)
- 6: B (RH) (Usable range 0 to 1820°C, 32 to 3308°F)
- 7: R (Usable range -50 to +1760°C, -58 to +3200°F)

8: S (Usable range -50 to +1760°C, -58 to +3200°F)

0: Specify

[2] OPTIONS

Burnout

blank: Upscale burnout

/BL: Downscale burnout

RELATED PRODUCTS

- Outdoor enclosure (model: 6BX-E)

PACKAGE INCLUDES...

• Mounting adapter

surface mounting adapter plate (model: A-01)

Spring clip (model: A-02)

DIN rail mounting plate (model: A-31)

Note: When a mounting adapter is required, specify mounting adapter. Not included without specifying.

When using in combination with outdoor enclosure (model: 6BX-E), use a spring clip (model: A-02).

GENERAL SPECIFICATIONS

Connection: M3 screw terminals (torque 0.6 N·m)

Screw terminal: Nickel-plated steel

Housing material: Diecast aluminum

Isolation: Input to output

Output limit: Approx. 120 %

Zero adjustment: -3 – +15 % (behind the access cover)

Span adjustment: 90 to 110 % (behind the access cover)

DIP/rotary switches: For input calibration

(Refer to the instruction manual)

Linearization: Not provided

Cold junction compensation: CJC sensor attached to the input terminals

INPUT SPECIFICATIONS

Minimum span: 3 mV

Offset: Max. 1.5 times span

Input resistance: 20 k Ω minimumBurnout sensing: 0.1 μ A

Minimum temperature span (in °C)

(PR): min. span 370°C

K (CA): min. span 75°C

E (CRC): min. span 50°C

J (IC): min. span 60°C

T (CC): min. span 75°C

B (RH): min. span 780°C

R: min. span 360°C

S: min. span 380°C

Minimum temperature span (in °F)

(PR): min. span 670°F
 K (CA): min. span 140°F
 E (CRC): min. span 90°F
 J (IC): min. span 110°F
 T (CC): min. span 140°F
 B (RH): min. span 1410°F
 R: min. span 650°F
 S: min. span 690°F

Note: For the temperatures that range below 0°C, the transmitter may partially not satisfy the described accuracy. Consult factory.

Burnout response: ≤ 10 sec.

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 500 V AC @ 1 minute

(input to output)

1500 V AC @ 1 minute

(input or output to ground)

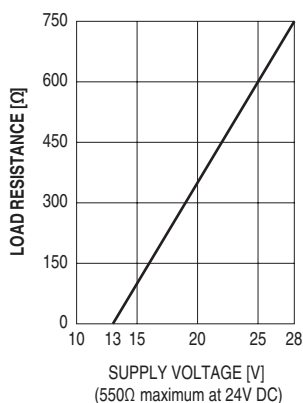
OUTPUT SPECIFICATIONS

Output: 4 – 20 mA DC

Load resistance vs. supply voltage: Load Resistance (Ω) =

(Supply Voltage (V) – 13 (V)) ÷ 0.02 (A)

(including leadwire resistance)



INSTALLATION

Supply voltage: 13 – 28 V DC

Operating temperature: -5 to +70°C (23 to 158°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: DIN rail with mounting plate A-31; surface mounting with adapter plate A-01; spring clip A-02 for 3-inch hub

Weight: 220 g (0.49 lb)

PERFORMANCE in percentage of span

Accuracy: ±0.1 %

Cold junction compensation error

(at 25°C ±10°C or 77°F ±18°F)

K, E, J & T: ±0.5°C or ±0.9°F

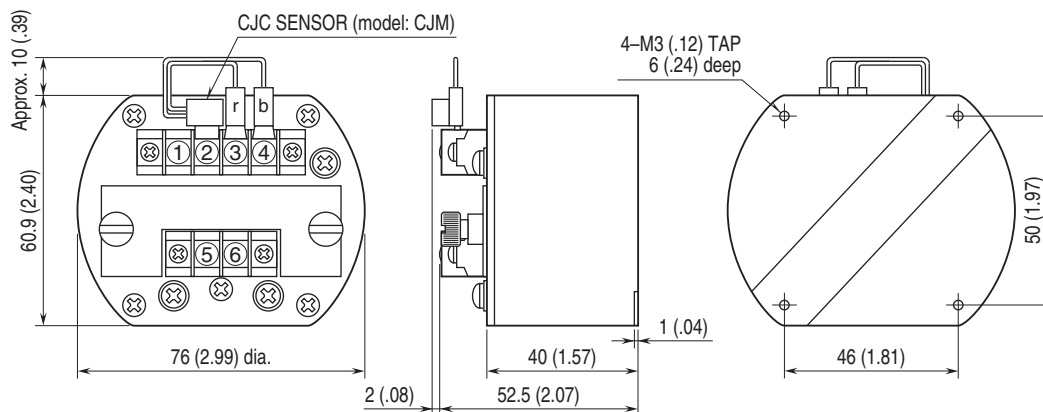
S, R & PR: ±1°C or ±1.8°F

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

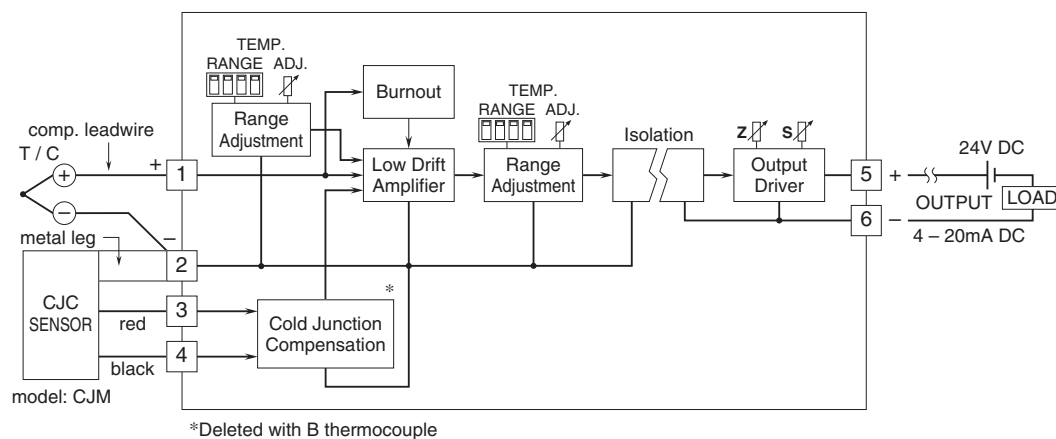
±0.02 %/°C (±0.01 %/°F) at spans ≤ 10 mV

Response time: ≤ 0.5 sec. (0 – 90 %)

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.